

PFAS Information and Q&A

Holbrook Board of Health

May 27th 2021

6:30pm

What are PFAS

- Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s.
- These PFAS are perfluorooctane sulfonic acid (PFOS); perfluorooctanoic acid (PFOA); perfluorohexane sulfonic acid (PFHxS); perfluorononanoic acid (PFNA); perfluoroheptanoic acid (PFHpA); and perfluorodecanoic acid (PFDA). MassDEP abbreviates this set of six PFAS as “PFAS6.”

Drinking Water Health Advisories for PFOA and PFOS. (2021, February 18). US EPA. <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos#:~:text=Drinking%20Water%20Health%20Advisories%20for%20PFOA%20and%20PFOS,-Additional%20PFOA%20and&text=To%20provide%20Americans%2C%20including%20the,at%2070%20parts%20per%20trillion.>

Commonwealth of Massachusetts. (n.d.). Per- and Polyfluoroalkyl Substances (PFAS). Mass.Gov. Retrieved May 24, 2021, from <https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas#:~:text=On%20October%202%2C%202020%2C%20MassDEP,concentrations%20of%20six%20specific%20PFAS.>

About PFAS

- PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body – meaning they don't break down and they can accumulate over time. There is evidence that exposure to PFAS can lead to adverse human health effects.

PFAS can be found in...

- **Food** packaged in PFAS-containing materials, processed with equipment that used PFAS, or grown in PFAS-contaminated soil or water.
- **Commercial household products**, including stain- and water-repellent fabrics, nonstick products (e.g., Teflon), pizza boxes, popcorn bags, stain repellents, polishes, waxes, paints, cleaning products, and fire-fighting foams.
- **Workplace**, including production facilities or industries (e.g., chrome plating, electronics manufacturing or oil recovery) that use PFAS.
- **Drinking water**, typically localized and associated with a specific facility (e.g., manufacturer, landfill, wastewater treatment plant, firefighter training facility).
- **Living organisms**, including fish, animals and humans, where PFAS have the ability to build up and persist over time.

Common ways of Exposure

- People can be exposed to low levels of PFAS through food, which can become contaminated through:
 - Contaminated soil and water used to grow the food,
 - Food packaging containing PFAS, and
 - Equipment that used PFAS during food processing.
- People can also be exposed to PFAS chemicals if they are released during normal use, biodegradation, or disposal of consumer products that contain PFAS. People may be exposed to PFAS used in commercially-treated products to make them stain- and water-repellent or nonstick. These goods include carpets, leather and apparel, textiles, paper and packaging materials, and non-stick cookware.
- Drinking water can be a source of exposure in communities where these chemicals have contaminated water supplies.
- An oil refinery, airfield or other location at which PFAS were used for firefighting.

Drinking Water Health Advisories

- To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA has established the health advisory levels at **70 parts per trillion**.
- On October 2, 2020, MassDEP published its PFAS public drinking water standard, called a Massachusetts Maximum Contamination Level (MCL), of **20 parts per trillion**, individually or for the sum of the concentrations of six specific PFAS.

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Holbrook Randolph Joint Water Results

- February 21, 2021 results were 21 ppt
- March 22, 2021 results were 19.3 ppt
- April 19, 2021 results were 18.8 ppt
- May 2021- results not available yet

Health Effects

- A large number of studies have examined possible relationships between levels of per- and polyfluoroalkyl substances (PFAS) in blood and harmful health effects in people.
- However, not all of these studies involved the same groups of people, the same type of exposure, or the same PFAS. These different studies therefore reported a variety of health outcomes.

Cont...

- Studies indicate that PFOA and PFOS can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animal studies. The most consistent findings from human epidemiology studies are increased cholesterol levels among exposed populations, with more limited findings related to: infant birth weights, effects on the immune system, cancer (for PFOA), and thyroid hormone disruption (for PFOS).

Studies

- At this time, scientists are still learning about the health effects of exposures to mixtures of different PFAS.
- One way to learn about whether PFAS will harm people is to do studies on lab animals.
- Most of these studies have tested doses of PFAS that are higher than levels found in the environment.
- These animal studies have found that PFAS can cause damage to the liver and the immune system.
- PFAS have also caused birth defects, delayed development, and newborn deaths in lab animals.
- Humans and animals react differently to PFAS, and not all effects observed in animals may occur in humans. Scientists have ways to estimate how the exposure and effects in animals compare to what they would be in humans.
- Additional research may change our understanding of the relationship between exposure to PFAS and human health effects.

Common Questions

Can I currently drink my tap water?

- Yes!

What is the current level of PFAS?

- 18.8 ppt combined total from April 2021 report

What is the EPA and MA DEP permissible level of PFAS before notification?

- 70 ppt for EPA and 20ppt for MA DEP

Cont...

Are PFAS new?

- They have been used in production since the 1940's.

What are the most common/studied PFAS

- PFOA & PFOS

Are PFAS still being made?

- Many PFAS are no longer being produced in the US. The largest manufacturer stopped production in 2002. Some countries still produce them.

Cont...

I drank the water when it was above the MCL- will I get sick?

- Drinking water at a level above MassDEP MCL does not necessarily mean that you have been harmed or will get sick. **The MCL is based on a level that is safe to drink for an entire lifetime.** For example, the MCL assumes that individuals drink only contaminated water and are also exposed to PFAS from sources beyond drinking water. Several safety factors are additionally applied to account for the differences between animals and humans and the differences from one human to another human. Under this scenario, a risk would be expected only if an individual continuously drinks only contaminated water at a level significantly higher than the MCL.

What's being done?

Immediate

- Continued monthly monitoring and sampling
- Evaluate options for providing alternative water sources for sensitive subgroups if a PFAS6 violation should occur

Intermediate Option being finalized

- Retrofit existing filters with GAC media and installation of reverse osmosis vending units for water distribution

Long Term

- PFAS treatment included in the design of the New Tri-Town Regional Water Treatment Plant

Questions from the Public
